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FOREST RESOURCES OF NORTHWEST FLORIDA, 1949

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In cooperation with
FLORIDA FOREST SERVICE
TALLAHASSEE, FLORIDA
C. H. COULTER, State Forester

FOREWORD

Through the McSweeney-McNary Act of 1928, Congress authorized the Secretary of Agriculture to conduct a comprehensive survey of the forest resources of the United States. The Forest Survey was organized by the Forest Service to carry out the provisions of the Act through the Regional Forest Experiment Stations. In the Southeastern states the Forest Survey is an activity of the Division of Forest Economics of the Southeastern Forest Experiment Station, Asheville, North Carolina.

The five-fold purpose of the Forest Survey is (1) to make a field inventory of the present supply of standing timber, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which it is being reduced through industrial and domestic uses, fire, and other causes, (4) to determine the present consumption and the probable future trend in requirements for forest products, and (5) to interpret and correlate these finds to aid in the formulation of private and public policies regarding forest land management.

The State of Florida was inventoried by the Forest Survey in the period 1934-36 and reports presenting the findings have been published. Since then, better forest management, more intensive forest use, changes in land use, and other factors have caused changes in the forest growing stock that can only be measured accurately by on-the-ground surveys. Field work on a resurvey of the forest resources of Florida was completed in August 1949. This progress report presents area and volume statistics of the resurvey in Northwest Florida (Survey Unit No. 2). Statistical reports covering Northeast Florida (Survey Unit No. 1) and Central Florida (Survey Unit No. 3) have already been published. When complete statistical data for the State are available, an analytical report will be prepared which will interpret these statistics and focus attention upon the principal forest problems.

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Office compilation of the data was under the direction of Miss Agnes Creasman, assisted by Mrs. Christine Paxton, Miss Priscilla Walker, and Miss Camilla Young.

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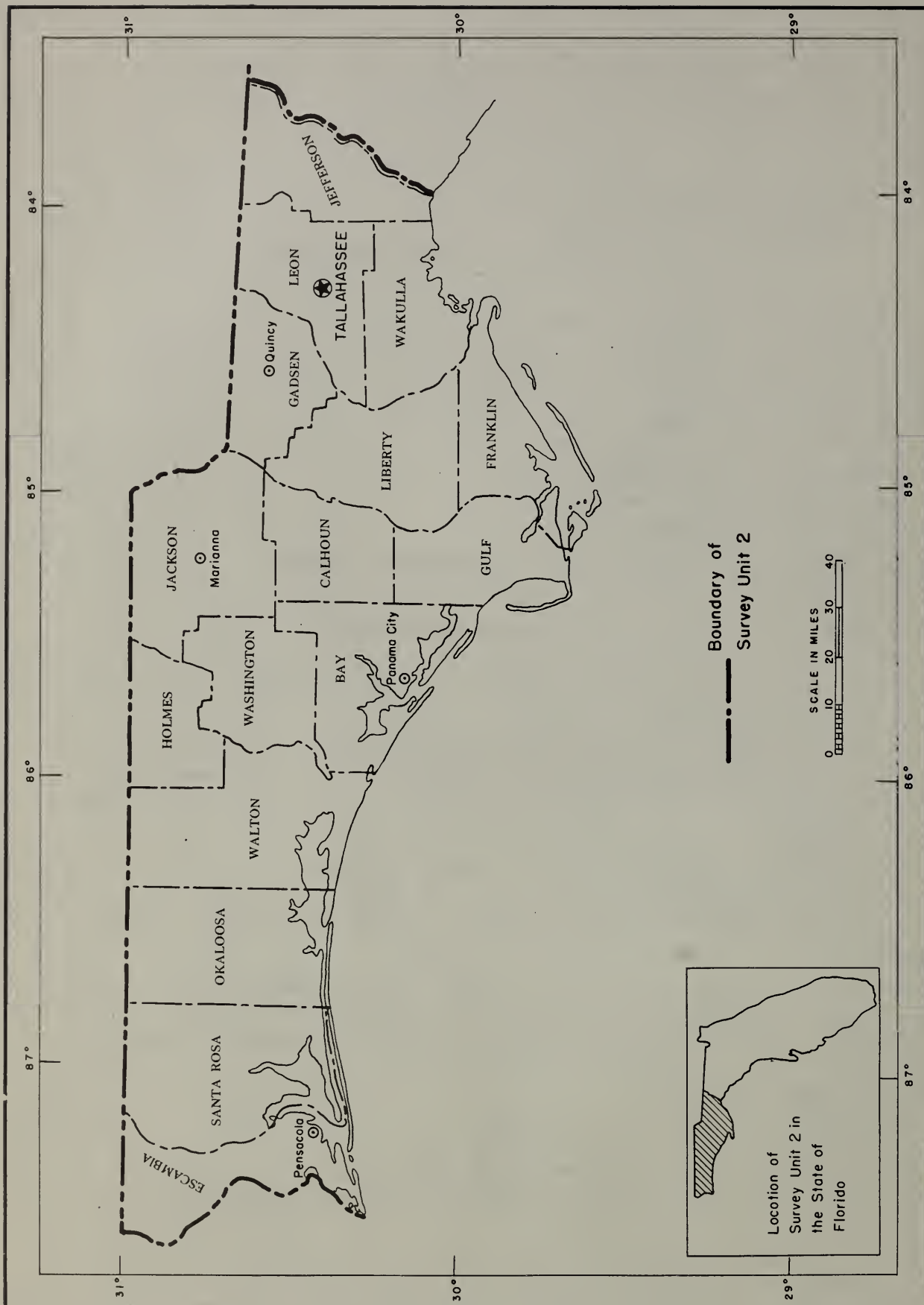


Figure 1.--Counties in Northwest Florida included in Survey Unit No. 2

FOREST RESOURCES OF NORTHWEST FLORIDA

The data presented in this publication were obtained from a resurvey of the forest resources of Florida during the period from June 1948 to August 1949. This report covers the group of 16 counties in Northwest Florida designated Survey Unit No. 2 (fig. 1). The field work was based on the combined use of aerial photography and ground plot examination to obtain current statistics on forest area and timber volumes. The original Forest Survey of this area was completed in 1934, and by comparing the current statistics with those of the original survey the changes which have taken place in the past 14 years can be determined.

1949 FACTS AND SIGNIFICANT CHANGES

Acreage of forest land: Nearly 6.1 million acres of land in Northwest Florida were classed as forest land in 1949. Of this total, 5.9 million acres were found to be in productive forests. No significant change in the area of forest land occurred between the original survey in 1934 and the resurvey of 1949. The Northwest Florida Survey Unit, with 83 percent of the total land area in forests, has the highest proportion of forest land found in the State.

Area in softwood forest types decreases: Northwest Florida exhibits the same trend in recent type changes that was found in the other areas of the State, but the changes are not as extensive. Since 1934, pine types on commercial forest land have decreased in area from 4.6 million acres to 4.2 million acres, a decline of 9 percent. The area occupied by hardwood types has increased from 1.2 million acres to 1.6 million acres, or 33 percent. Pine types are still predominant, since they occupy 71 percent of the commercial forest land area.

Saw-timber volume decreases: The total volume of saw timber in 1949 was 6.3 billion board feet. This total includes 525 million board feet in hardwood trees 12 inches d.b.h., which were not considered saw timber in the original survey. To place the data on a comparable basis, the present volume in these 12-inch hardwoods has been omitted.

Table A.--Change in volume of saw timber, 1934 to 1949

Species group	: 1934	: 1949	: Change
	<u>Thousand</u> <u>bd. ft.</u>	<u>Thousand</u> <u>bd. ft.</u>	<u>Percent</u>
Pines	3,982,600	3,822,900	- 4
Hardwoods ^{1/}	2,261,800	1,621,200	-28
Cypress ^{2/}	623,500	369,100	-41
All species	6,867,900	5,813,200	-15

^{1/} Excludes volume of hardwoods 12 inches d.b.h.

^{2/} Includes volume of cedar.

Only 14 percent of forest area is in saw timber: Stands of saw timber containing 1,500 board feet or more per acre were found on only 14 percent of the commercial forest land. Of the remaining forest area, 19 percent is occupied by stands of pole timber, 17 percent by stands of seedlings and saplings, and 50 percent is either unstocked or lightly stocked with scattered trees (see definition of stand size classes, p. 30). No direct comparisons of forest area by stand class are possible between the original and current surveys because different standards were used.

Total sound-tree volume decreases slightly: The net cubic-foot volume of all sound trees 5.0 inches and larger decreased 2 percent during the period. However, the decrease was entirely in the hardwood and cypress species groups and was nearly balanced by an increase in the volume of pine.

The volume of sound wood in cull trees increased heavily in the hardwood species group. This same trend has been found in other areas of the State.

Table B.--Change in volume of all trees 5.0 inches d.b.h. and larger, 1934 to 1949

Species group:	Sound tree volume			Cull tree volume		
	1934	1949	Change	1934	1949	Change
	<u>Million</u> <u>cu. ft.</u>	<u>Million</u> <u>cu. ft.</u>	<u>Percent</u>	<u>Million</u> <u>cu. ft.</u>	<u>Million</u> <u>cu. ft.</u>	<u>Percent</u>
Pines ^{1/}	1,200	1,321	+10	21	25	+ 19
Hardwoods ^{2/}	936	854	- 9	335	769	+130
Cypress	196	110	-44	41	39	- 5
All species	2,332	2,285	- 2	397	833	+110

^{1/} Excluding turpentine butts.

^{2/} Excluding limb volume of sound hardwood trees.

Two-thirds of the forest land is understocked: In this Survey Unit 3.9 million acres are less than 40 percent stocked with sound trees. The understocked areas comprise two-thirds of all the commercial forest land in the Unit. Approximately 2 million acres are seriously understocked, having less than 10 percent of the required stocking of sound trees, and the other 1.9 million acres fall in the range of stocking from 10 to 39 percent.

Turpentine activity decreases: The area in turpentine crops and the number of trees being worked in Northwest Florida show a heavy decline since the original survey. In 1949 there were 104,900 acres in working timber crops compared to 940,000 acres in 1934. The number of turpentine pine trees being worked decreased from 12,081,000 to 2,742,000 during the period.

REASONS FOR AREA AND VOLUME CHANGES

Forest type area changes: The shift in forest area from softwood to hardwood types is a trend found throughout Florida, and is also present in other Southeastern states. Where stands of pine and cypress timber with a hardwood understory are cut over, the hardwoods usually occupy the site unless some measures are used to control them. In many areas, repeated burning, which destroys hardwood reproduction, has been reduced thus permitting greater hardwood competition. In most cases this trend to hardwoods is the result of a natural succession to hardwood types and will continue unless control measures are applied.

Saw-timber volume: The board-foot volumes shown in Table A have been made comparable by the exclusion of the present volume in 12-inch d.b.h. hardwood trees. The 12-inch hardwoods were not considered saw timber in the original survey.

The decrease in the board-foot volume of pine is slight and may not be significant. The data indicate that the higher growth rate of this species group has replaced nearly all of the volume cut or removed for various uses. The decreases in the volumes of hardwood and cypress are much greater and result from heavy cutting of these species in proportion to total volume, a slower rate of growth or replacement, and a larger number of cull hardwood trees.

Cubic volume: The data shown in Table B have also been made comparable. The net cubic-foot volume of all sound trees 5.0 inches d.b.h. and larger decreased 2 percent during the period. By species groups it was found that the cubic volume of pines increased 10 percent, indicating a reduction in trees of larger sizes (see Table A) and an increase in the number of trees of pole size. This change is the result of better stocking in pine stands and a more rapid growth rate.

In hardwoods, the decrease of 9 percent in cubic volume and 28 percent in saw-timber volume indicates a reduction of trees in the larger diameter classes which was partially offset by an increase in the number and volume of pole-size trees. This is not the case with cypress, where the decreases in both board-foot and cubic-foot volumes are about equal. The cypress stands are apparently being replaced by hardwoods as they are cut over, and the cypress is not restocking.

Cull volume: The changes in cull volumes of pine and cypress are relatively small and may not be significant. However, the volume of sound material in cull hardwood trees has more than doubled. During the original survey about one-fourth of the total hardwood volume was found to be in cull trees. In the resurvey, nearly half (47 percent) of the hardwood volume was in cull trees.

This increase in the volume of cull hardwoods is due to increases in the volume of both scrub oak and rotten cull trees. Excluding scrub oak, there was no significant change in the volume of other rough culls. More than one-fourth of the increase was accounted for by scrub oak, while rotten cull trees made up the remainder. Many hardwood trees which contained rot in some degree at the time of the original survey have since become too rotten to qualify as sound trees. This trend is augmented by cutting practices which seldom remove hardwoods with any marked degree of cull from the stand. The proportion of volume in cull trees in cut-over hardwood stands thus tends to become increasingly greater.

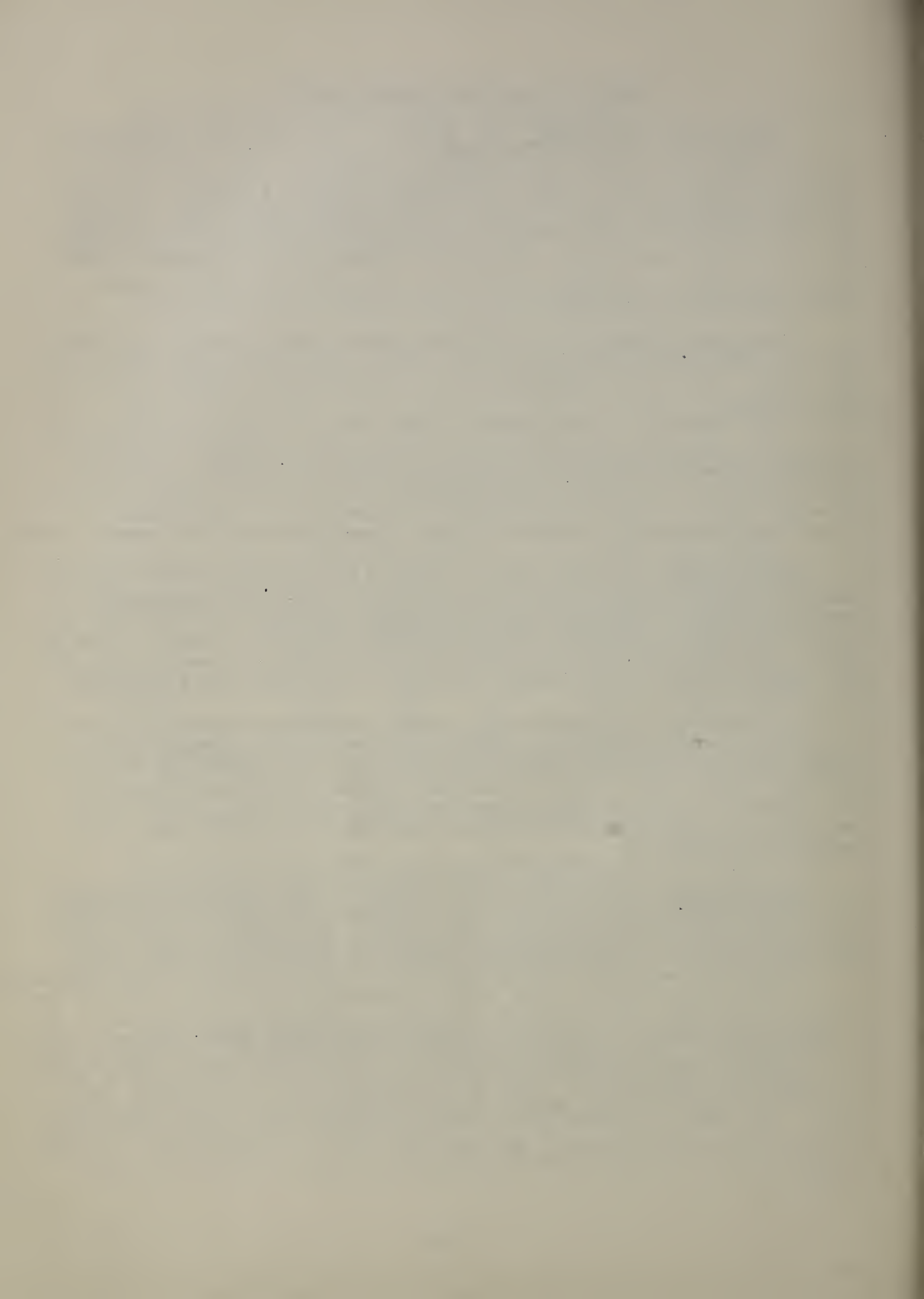


Table 1.--Gross area^{1/} by broad use class, 1949

Class of use	Area	
	<u>Acres</u>	<u>Percent</u>
Forest land:		
Commercial	5,928,000	77.4
Reserved	4,200	0.0
Non-productive	127,900	1.7
Total forest	6,060,100	79.1
Non-forest land:		
Agricultural - active	700,800	9.2
Agricultural - idle	234,300	3.1
Marsh	127,400	1.7
Dunes and beaches	25,700	0.3
Urban and other ^{2/}	171,600	2.2
Total non-forest	1,259,800	16.5
Total land area	7,319,900	95.6
Total water area	340,300	4.4
All classes	7,660,200	100.0

^{1/} From U. S. Bureau of the Census, 1940.

^{2/} Includes urban, suburban residential, and rural industrial areas, rights-of-way, cemeteries, schools, etc.

Table 2.--Ownership of land, 1949

Class of ownership	All land		Commercial forest land	
	<u>Acres</u>	<u>Percent</u>	<u>Acres</u>	<u>Percent</u>
Public land:				
National forest	553,500	7.5	542,700	9.1
Indian	---	---	---	---
Other federal	767,600	10.5	675,200	11.4
Total federal	1,321,100	18.0	1,217,900	20.5
State	51,600	0.7	23,300	0.4
County and municipal	18,800	0.3	4,000	0.1
Total public	1,391,500	19.0	1,245,200	21.0
Private land	5,928,400	81.0	4,682,800	79.0
All classes	7,319,900	100.0	5,928,000	100.0

Table 3.--Commercial forest area by forest type and stand size, 1949

Forest type ^{1/}	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Longleaf pine	--	3/ 159,000	532,100	220,100	1,474,000	2,385,200
Slash pine	42,000	162,500	206,900	493,200	424,300	1,328,900
Loblolly pine ^{2/}	44,100	49,200	69,400	74,600	123,700	361,000
Pond pine	--	6,600	10,900	8,800	67,100	93,400
Sand pine	--	--	28,200	5,900	32,900	67,000
Cypress	14,100	22,900	26,300	22,500	32,000	117,800
All sftwd. types	100,200	400,200	873,800	825,100	2,154,000	4,353,300
Lowland hardwoods	133,900	197,300	198,900	184,200	135,800	850,100
Upland hardwoods	2,000	2,300	36,800	27,800	48,300	117,200
Scrub oak	--	--	--	--	606,600	606,600
All hdwd. types	135,900	199,600	235,700	212,000	790,700	1,573,900
Palm	--	--	--	--	800	800
All types	236,100	599,800	1,109,500	1,037,100	2,945,500	5,928,000
Percent	4.0	10.1	18.7	17.5	49.7	100.0

^{1/} See description of forest types and stand size classes in appendix.

^{2/} Includes 29,100 acres of shortleaf pine type.

^{3/} Includes a small acreage in large saw-timber stands.

Table 4.--Net volume^{1/} of saw timber by species and stand size, 1949
(in thousand board feet)

Species ^{2/}	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Longleaf pine	3,000	^{3/} 588,300	351,700	128,700	526,800	1,598,500
Slash pine	316,600	545,400	184,000	209,000	140,300	1,395,300
Loblolly pine	209,100	298,300	41,400	33,600	39,900	622,300
Pond pine	3,600	24,900	1,000	8,800	20,900	59,200
Other pines	106,200	2,700	22,700	16,000	--	147,600
Total	638,500	1,459,600	600,800	396,100	727,900	3,822,900
Cypress	102,000	131,400	43,100	18,100	18,800	313,400
Cedar	14,800	26,900	2,000	--	12,000	55,700
Total sftwds.	755,300	1,617,900	645,900	414,200	758,700	4,192,000
Hardwoods:						
Tupelo	289,600	290,800	87,200	26,900	6,500	701,000
Sweetgum	100,500	65,400	15,100	29,000	15,100	225,100
Soft maple	4,600	12,500	2,000	--	2,900	22,000
Other soft hdwds.	80,100	211,000	72,200	19,400	14,300	397,000
Total	474,800	579,700	176,500	75,300	38,800	1,345,100
Red oaks	73,700	126,800	67,400	34,100	64,600	366,600
White oaks	82,300	43,500	49,800	4,400	4,800	184,800
Hickory	21,700	10,100	23,300	19,600	7,000	81,700
Ash	25,500	39,500	4,400	--	700	70,100
Other hard hdwds.	55,900	34,500	4,700	1,000	1,500	97,600
Total	259,100	254,400	149,600	59,100	78,600	800,800
Total hdwds.	733,900	834,100	326,100	134,400	117,400	2,145,900
All species	1,489,200	2,452,000	972,000	548,600	876,100	6,337,900
Percent	23.5	38.7	15.3	8.7	13.8	100.0

^{1/} Log scale, International 1/4-inch rule.

^{2/} See appendix for species combined with others.

^{3/} Includes a little volume in large saw-timber stands.

Table 5.--Net volume^{1/} of saw timber by species and diameter class, 1949

Species	10-12 inches ^{2/}	14-18 inches	20-24 inches	26 + inches	All diameters	
	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Percent</u>
Softwoods:						
Longleaf pine	1,271,700	294,800	32,000	--	1,598,500	25.2
Slash pine	771,700	529,900	93,700	--	1,395,300	22.0
Loblolly pine	236,700	298,600	31,500	55,500	622,300	9.8
Pond pine	27,900	31,300	--	--	59,200	1.0
Other pines	22,800	50,500	74,300	--	147,600	2.3
Total	2,330,800	1,205,100	231,500	55,500	3,822,900	60.3
Cypress	127,600	155,800	30,000	--	313,400	4.9
Cedar	19,700	31,800	4,200	--	55,700	0.9
Total sftwds.	2,478,100	1,392,700	265,700	55,500	4,192,000	66.1
Hardwoods:						
Tupelo	166,200	379,200	151,200	4,400	701,000	11.1
Sweetgum	59,400	124,000	36,100	5,600	225,100	3.5
Soft maple	8,500	13,500	--	--	22,000	0.3
Other soft hwdws.	123,200	235,700	34,800	3,300	397,000	6.3
Total	357,300	752,400	222,100	13,300	1,345,100	21.2
Red oaks	81,400	213,600	54,900	16,700	366,600	5.8
White oaks	20,400	65,400	94,900	4,100	184,800	2.9
Hickory	29,000	44,400	8,300	--	81,700	1.3
Ash	23,300	38,900	7,900	--	70,100	1.1
Other hard hwdws.	13,300	38,400	45,900	--	97,600	1.6
Total	167,400	400,700	211,900	20,800	800,800	12.7
Total hwdws.	524,700	1,153,100	434,000	34,100	2,145,900	33.9
All species	3,002,800	2,545,800	699,700	89,600	6,337,900	100.0
Percent	47.4	40.2	11.0	1.4	100.0	

^{1/} Log scale, International 1/4-inch rule.

^{2/} Ten-inch hardwoods are not included.

Table 6.--Net volume^{1/} of saw timber by forest type and stand size, 1949

(in thousand board feet)

Forest type ^{2/}	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Longleaf pine	---	^{4/} 564,200	371,500	108,000	505,100	1,548,800
Slash pine	374,600	599,100	170,100	248,500	119,100	1,511,400
Loblolly pine ^{3/}	223,200	270,100	80,600	30,100	13,300	617,300
Pond pine	---	24,900	3,700	1,900	22,900	53,400
Sand pine	---	---	18,500	---	---	18,500
Cypress	96,600	112,400	20,500	3,700	13,000	246,200
All sftwd. types	694,400	1,570,700	664,900	392,200	673,400	3,995,600
Lowland hardwoods	789,500	878,000	274,800	132,200	141,400	2,215,900
Upland hardwoods	5,300	3,300	32,300	24,200	35,800	100,900
Scrub oak	---	---	---	---	25,500	25,500
All hdwd. types	794,800	881,300	307,100	156,400	202,700	2,342,300
All types	1,489,200	2,452,000	972,000	548,600	876,100	6,337,900
Percent	23.5	38.7	15.3	8.7	13.8	100.0

^{1/} Log scale, International 1/4-inch rule.

^{2/} See description of forest types and stand-size classes in appendix.

^{3/} Includes 101,100 thousand board feet in shortleaf pine type.

^{4/} Includes a little volume in large saw-timber stands.

Table 7.--Net volume^{1/} of all trees by species and stand size, 1949

SOUND TREES (in thousand cords)

Species	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Longleaf pine	9	^{3/} 2,180	3,695	658	2,886	9,428
Slash pine	788	1,998	1,877	1,154	606	6,423
Loblolly pine	507	901	375	254	181	2,218
Pond pine	9	71	19	28	106	233
Other pines	238	16	138	95	2	489
Total	1,551	5,166	6,104	2,189	3,781	18,791
Cypress	239	431	333	104	99	1,206
Cedar	34	67	7	20	29	157
Total sftwds.	1,824	5,664	6,444	2,313	3,909	20,154
Hardwoods:						
Tupelo	878	1,569	999	210	85	3,741
Sweetgum	322	293	283	179	75	1,152
Soft maple	30	184	50	--	13	277
Other soft hdwds.	384	1,186	752	159	192	2,673
Total	1,614	3,232	2,084	548	365	7,843
Red oaks	233	574	544	209	269	1,829
White oaks	232	136	271	17	46	702
Hickory	76	31	145	126	23	401
Ash	145	207	89	3	12	456
Holly, dogwood	115	21	106	5	29	276
Other hard hdwds.	171	106	73	5	15	370
Total	972	1,075	1,228	365	394	4,034
Total hdwds.	2,586	4,307	3,312	913	759	11,877
All species	4,410	9,971	9,756	3,226	4,668	32,031
Percent	13.8	31.1	30.4	10.1	14.6	100.0

TREES OF OTHER QUALITY CLASSES (in thousand cords)

Rough culls						
Softwoods	13	64	120	45	84	326
Hardwoods ^{2/}	1,182	1,176	1,243	562	2,228	6,391
Rotten culls	1,142	1,457	1,417	569	1,092	5,677
Palms	6	19	11	4	148	188
All other classes	2,343	2,716	2,791	1,180	3,552	12,582

^{1/} Sound wood and bark.^{2/} Includes scrub oak and noncommercial species.^{3/} Includes a little volume in large saw-timber stands.

Table 8.--Net volume^{1/} of all trees by species and diameter class, 1949

SOUND TREES (in thousand cords)

Species	Pole trees		Saw-timber trees				All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20 + inches	
Softwoods:							
Longleaf pine	2,317	2,632	2,258	1,419	735	67	9,428
Slash pine	1,454	1,246	1,185	1,048	1,287	203	6,423
Loblolly pine	290	366	323	346	716	177	2,218
Pond pine	11	66	45	33	78	--	233
Other pines	75	74	50	20	116	154	489
Total	4,147	4,384	3,861	2,866	2,932	601	18,791
Cypress	167	306	188	144	341	60	1,206
Cedar	18	10	17	33	70	9	157
Total sftwds.	4,332	4,700	4,066	3,043	3,343	670	20,154
Hardwoods:							
Tupelo	570	597	673	495	1,014	392	3,741
Sweetgum	252	153	164	170	315	98	1,152
Soft maple	79	85	53	24	36	--	277
Other soft hdwds.	444	574	612	353	597	93	2,673
Total	1,345	1,409	1,502	1,042	1,962	583	7,843
Red oaks	233	325	306	241	548	176	1,829
White oaks	46	126	58	58	171	243	702
Hickory	82	63	41	82	113	20	401
Ash	82	95	87	68	105	19	456
Holly, dogwood	181	67	18	7	3	--	276
Other hard hdwds.	43	40	47	37	96	107	370
Total	667	716	557	493	1,036	565	4,034
Total hdwds.	2,012	2,125	2,059	1,535	2,998	1,148	11,877
All species	6,344	6,825	6,125	4,578	6,341	1,818	32,031
Percent	19.8	21.3	19.1	14.3	19.8	5.7	100.0

TREES OF OTHER QUALITY CLASSES (in thousand cords)

Rough culls							
Softwoods	16	71	132	45	43	19	326
Hardwoods ^{2/}	1,519	1,026	885	967	1,308	686	6,391
Rotten culls	351	529	503	452	1,721	2,121	5,677
Palms	--	5	61	108	14	--	188
All other classes	1,886	1,631	1,581	1,572	3,086	2,826	12,582

^{1/} Sound wood and bark.^{2/} Includes scrub oak and noncommercial species.

Table 9.--Net volume^{1/} of all trees by species and class of material, 1949
(in thousand cords)

Species	SOUND TREES				CULL TREES	
	Saw-timber trees		Pole timber trees	Total sound trees	Rough	Rotten
	Sawlog portion	Upper stems				
Softwoods:						
Longleaf pine	3,608	871	4,949	9,428	61	6
Slash pine	2,997	726	2,700	6,423	71	21
Loblolly pine	1,254	308	656	2,218	54	38
Pond pine	128	28	77	233	21	11
Other pines	269	71	149	489	61	--
Total	8,256	2,004	8,531	18,791	268	76
Cypress	572	161	473	1,206	55	349
Cedar	103	26	28	157	3	32
Total sftwds.	8,931	2,191	9,032	20,154	326	457
Hardwoods:						
Tupelo	1,530	371	1,840	3,741	1,109	2,176
Sweetgum	465	118	569	1,152	229	258
Soft maple	51	9	217	277	117	165
Other soft hdwds.	844	199	1,630	2,673	899	1,192
Total	2,890	697	4,256	7,843	2,354	3,791
Red oaks	782	183	864	1,829	656	779
White oaks	387	85	230	702	513	278
Hickory	175	40	186	401	74	64
Ash	161	31	264	456	322	196
Holly, dogwood	10	--	266	276	13	38
Scrub oak ^{2/}	--	--	--	--	2,240	--
Other hard hdwds.	192	48	130	370	219	74
Total	1,707	387	1,940	4,034	4,037	1,429
Total hdwds.	4,597	1,084	6,196	11,877	6,391	5,220
All species	13,528	3,275	15,228	32,031	6,717	5,677
Percent	42.2	10.2	47.6	100.0	54.2	45.8

^{1/} Sound wood and bark, excluding volume of palms shown in tables 7 and 8.

^{2/} Includes noncommercial species.

Table 10.--Net volume^{1/} of all trees by forest type and stand size, 1949

SOUND TREES (in thousand cords)

Forest type	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Longleaf pine	--	^{2/} 2,143	3,896	588	2,847	9,474
Slash pine	1,106	2,554	1,840	1,340	601	7,441
Loblolly pine	575	956	730	275	139	2,675
Pond pine	--	70	38	11	131	250
Sand pine	--	--	134	4	--	138
Cypress	270	355	264	32	58	979
All sftwd. types	1,951	6,078	6,902	2,250	3,776	20,957
Lowland hdwds.	2,445	3,874	2,540	816	644	10,319
Upland hdwds.	14	19	314	160	110	617
Scrub oak	--	--	--	--	138	138
All hdwd. types	2,459	3,893	2,854	976	892	11,074
All types	4,410	9,971	9,756	3,226	4,668	32,031
Percent	13.8	31.1	30.4	10.1	14.6	100.0

ROUGH AND ROTTEN CULLS (in thousand cords)

Longleaf pine	--	48	171	68	528	815
Slash pine	172	283	97	179	139	870
Loblolly pine	77	157	250	163	187	834
Pond pine	--	--	--	4	6	10
Sand pine	--	--	49	12	19	80
Cypress	164	171	55	4	32	426
All sftwd. types	413	659	622	430	911	3,035
Lowland hdwds.	1,917	2,036	2,083	682	1,673	8,391
Upland hdwds.	7	2	75	64	105	253
Scrub oak	--	--	--	--	715	715
All hdwd. types	1,924	2,038	2,158	746	2,493	9,359
All types	2,337	2,697	2,780	1,176	3,404	12,394
Percent	18.8	21.8	22.4	9.5	27.5	100.0

^{1/} Sound wood and bark, excluding volume of palms shown in tables 7 and 8.

^{2/} Includes a little volume in large saw-timber stands.

Table 11.--Net volume^{1/} of pole timber trees by forest type and stand size, 1949

SOUND TREES (in thousand cords)

Forest type	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Longleaf pine	--	608	2,843	291	1,395	5,137
Slash pine	203	927	1,358	656	277	3,421
Loblolly pine	62	248	511	194	103	1,118
Pond pine	--	3	28	6	68	105
Sand pine	--	--	80	4	--	84
Cypress	45	79	211	22	23	380
All sftwd. types	310	1,865	5,031	1,173	1,866	10,245
Lowland hdwds.	484	1,538	1,806	463	279	4,570
Upland hdwds.	2	10	222	95	21	350
Scrub oak	--	--	--	--	63	63
All hdwd. types	486	1,548	2,028	558	363	4,983
All types	796	3,413	7,059	1,731	2,229	15,228
Percent	5.2	22.4	46.4	11.4	14.6	100.0

ROUGH AND ROTTEN CULLS (in thousand cords)

Longleaf pine	--	15	93	66	443	617
Slash pine	92	154	62	79	53	440
Loblolly pine	16	51	90	49	75	281
Pond pine	--	--	--	1	2	3
Sand pine	--	--	14	12	6	32
Cypress	59	48	44	3	13	167
All sftwd. types	167	268	303	210	592	1,540
Lowland hdwds.	436	449	692	291	785	2,653
Upland hdwds.	4	2	30	27	5	68
Scrub oak	--	--	--	--	568	568
All hdwd. types	440	451	722	318	1,358	3,289
All types	607	719	1,025	528	1,950	4,829
Percent	12.6	14.9	21.2	10.9	40.4	100.0

^{1/} Sound wood and bark, excluding volume of palms shown in tables 7 and 8.

Table 12.--Net volume^{1/} of all trees by species and diameter class, 1949

SOUND TREES (in thousand cubic feet)

Species	Pole trees		Saw-timber trees				All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20 + inches	
Softwoods:							
Longleaf pine	135,938	177,558	163,702	107,075	58,034	5,794	648,101
Slash pine	85,347	83,518	85,316	79,641	103,213	17,035	454,070
Loblolly pine	16,984	24,891	23,263	26,343	57,505	15,531	164,517
Pond pine	658	4,557	3,311	2,572	6,149	--	17,247
Other pines	4,434	4,856	3,590	1,414	9,421	13,268	36,983
Total	243,361	295,380	279,182	217,045	234,322	51,628	1,320,918
Cypress	10,988	23,097	15,098	12,018	30,327	5,567	97,095
Cedar	1,175	720	1,352	2,774	6,210	816	13,047
Total sftwds.	255,524	319,197	295,632	231,837	270,859	58,011	1,431,060
Hardwoods:							
Tupelo	34,436	39,109	46,836	37,363	80,230	31,511	269,485
Sweetgum	15,316	10,609	11,533	12,946	24,899	7,960	83,263
Soft maple	4,693	5,699	3,749	1,882	2,812	--	18,835
Other soft hdwds.	26,795	38,323	42,561	26,802	47,836	7,617	189,934
Total	81,240	93,740	104,679	78,993	155,777	47,088	561,517
Red oaks	14,097	21,549	20,739	18,040	43,887	14,515	132,827
White oaks	2,773	8,371	3,729	4,553	13,649	19,824	52,899
Hickory	5,028	4,138	2,807	6,188	9,124	1,618	28,903
Ash	4,934	6,179	6,044	5,338	8,334	1,509	32,338
Holly, dogwood	10,893	4,635	1,300	529	218	--	17,575
Other hard hdwds.	2,653	2,577	3,273	2,902	7,639	8,746	27,790
Total	40,378	47,449	37,892	37,550	82,851	46,212	292,332
Total hdwds.	121,618	141,189	142,571	116,543	238,628	93,300	853,849
All species	377,142	460,386	438,203	348,380	509,487	151,311	2,284,909
Percent	16.5	20.2	19.2	15.2	22.3	6.6	100.0

TREES OF OTHER QUALITY CLASSES (in thousand cubic feet)

Rough culls							
Softwoods	947	4,862	9,778	3,460	3,537	1,591	24,175
Hardwoods ^{2/}	92,041	67,180	61,591	70,263	102,397	55,196	448,668
Rotten culls	21,432	34,214	35,971	34,825	137,702	177,377	441,521
Palms	--	514	6,571	10,953	1,534	--	19,572
All other classes	114,420	106,770	113,911	119,501	245,170	234,164	933,936

^{1/} Excluding bark.^{2/} Includes scrub oak and noncommercial species.

Table 13.--Net volume^{1/} of all trees by species and class of material, 1949
(in thousand cubic feet)

Species	SOUND TREES				CULL TREES	
	Saw-timber trees		Pole timber trees	Total sound trees	Rough	Rotten
	Sawlog portion	Upper stems				
Softwoods:						
Longleaf pine	273,926	60,679	313,496	648,101	4,622	356
Slash pine	232,225	52,980	168,865	454,070	4,994	1,536
Loblolly pine	99,219	23,423	41,875	164,517	3,951	2,741
Pond pine	9,771	2,261	5,215	17,247	1,467	803
Other pines	22,117	5,576	9,290	36,983	4,514	--
Total	637,258	144,919	538,741	1,320,918	19,548	5,436
Cypress	51,109	11,901	34,085	97,095	4,381	31,393
Cedar	9,042	2,110	1,895	13,047	246	2,802
Total sftwds.	697,409	158,930	574,721	1,431,060	24,175	39,631
Hardwoods:						
Tupelo	122,363	26,741	120,381	269,485	79,959	169,760
Sweetgum	37,326	8,479	37,458	83,263	16,197	19,814
Soft maple	3,866	828	14,141	18,835	8,503	11,549
Other soft hwdws.	67,204	15,051	107,679	189,934	64,018	91,572
Total	230,759	51,099	279,659	561,517	168,677	292,695
Red oaks	62,393	14,049	56,385	132,827	49,189	60,594
White oaks	30,979	7,047	14,873	52,899	38,576	21,577
Hickory	13,832	3,098	11,973	28,903	5,465	5,022
Ash	12,484	2,697	17,157	32,338	22,481	14,286
Holly, dogwood	747	--	16,828	17,575	843	2,381
Scrub oak ^{2/}	--	--	--	--	147,100	--
Other hard hwdws.	15,575	3,712	8,503	27,790	16,337	5,335
Total	136,010	30,603	125,719	292,332	279,991	109,195
Total hwdws.	366,769	81,702	405,378	853,849	448,668	401,890
All species	1,064,178	240,632	980,099	2,284,909	472,843	441,521
Percent	46.6	10.5	42.9	100.0	51.7	48.3

^{1/} Excluding bark and volume of palms shown in table 12.

^{2/} Includes noncommercial species.

Table 14.--Average volume^{1/} per acre of saw timber by forest type, species group,
and stand size, 1949

(in board feet)

Forest type and species group	Large saw-timber stands	Small saw-timber stands	Pole timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Longleaf pine						
Softwood	--	^{2/} 3,528	678	487	338	640
Hardwood	--	21	20	4	5	9
Slash pine						
Softwood	8,213	3,536	784	499	281	1,089
Hardwood	710	151	38	4	--	48
Loblolly pine						
Softwood	4,725	4,685	715	165	74	1,413
Hardwood	329	809	447	238	34	297
Pond pine						
Softwood	--	3,763	342	217	342	572
Hardwood	--	--	--	--	--	--
Sand pine						
Softwood	--	--	345	--	--	145
Hardwood	--	--	311	--	--	131
Cypress						
Softwood	4,901	4,158	780	163	408	1,712
Hardwood	1,950	744	--	--	--	378
Lowland hardwoods						
Softwood	991	663	195	233	524	490
Hardwood	4,906	3,787	1,186	485	517	2,117
Upland hardwoods						
Softwood	--	440	18	--	--	14
Hardwood	2,617	988	856	872	741	846
Scrub oak						
Softwood	--	--	--	--	42	42
Hardwood	--	--	--	--	--	--
All types						
Softwood	3,198	2,698	582	399	258	707
Hardwood	3,096	1,393	294	130	40	362

^{1/} Log scale, International 1/4-inch rule.

^{2/} Includes a little volume in large saw-timber stands.

Table 15.--Average volume^{1/} per acre of all trees by forest type, species group,
and stand size, 1949
(in standard cords)

Forest type and species group	Large saw-timber stands		Small saw-timber stands		Pole timber stands		Other stand sizes		All stands	
	Sound ^{2/}	Cull ^{2/}	Sound	Cull	Sound	Cull	Sound	Cull	Sound	Cull
Longleaf pine										
Softwood	--	--	^{3/} 13.4	0.2	7.1	0.1	2.0	(<u>4/</u>)	3.9	(<u>4/</u>)
Hardwood	--	--	0.1	0.2	0.3	0.3	0.1	0.3	0.1	0.3
Slash pine										
Softwood	20.6	0.4	13.0	0.2	8.5	0.1	2.0	0.1	5.0	0.2
Hardwood	5.8	3.7	2.7	1.5	0.4	0.3	0.1	0.2	0.6	0.5
Loblolly pine										
Softwood	11.3	--	14.8	0.7	6.1	0.5	1.3	0.1	5.3	0.2
Hardwood	1.7	1.7	4.7	2.5	4.5	3.1	0.8	1.7	2.1	2.1
Pond pine										
Softwood	--	--	10.6	--	3.5	--	1.9	0.1	2.7	0.1
Hardwood	--	--	--	--	--	--	--	(<u>4/</u>)	--	(<u>4/</u>)
Sand pine										
Softwood	--	--	--	--	2.3	1.4	0.1	0.3	1.0	0.8
Hardwood	--	--	--	--	2.4	0.4	--	0.5	1.0	0.4
Cypress										
Softwood	11.6	1.6	11.2	0.9	7.9	1.0	1.7	0.7	6.1	0.9
Hardwood	7.6	10.0	4.3	6.6	2.2	1.1	--	--	2.2	2.7
Lowland hardwoods										
Softwood	2.2	0.7	1.8	0.3	0.9	0.2	1.3	0.2	1.5	0.3
Hardwood	16.0	13.6	17.8	10.0	11.9	10.3	3.2	7.2	10.6	9.6
Upland hardwoods										
Softwood	--	--	1.3	--	0.3	--	--	--	0.1	--
Hardwood	6.9	3.5	7.0	0.9	8.2	2.0	3.5	2.2	5.1	2.1
Scrub oak										
Softwood	--	--	--	--	--	--	0.2	--	0.2	--
Hardwood	--	--	--	--	--	--	(<u>4/</u>)	1.2	(<u>4/</u>)	1.2
All types										
Softwood	7.7	0.5	9.4	0.3	5.8	0.2	1.6	0.1	3.4	0.1
Hardwood	10.9	9.3	7.2	4.2	3.0	2.3	0.4	1.1	2.0	2.0

^{1/} Sound wood and bark, excluding volume of palms.

^{2/} Sound trees; cull trees.

^{3/} Includes a little volume in large saw-timber stands.

^{4/} Less than 0.05 cords per acre.

Table 16.--Average volume^{1/} per acre of pole timber trees by forest type, species group, and stand size, 1949
(in standard cords)

Forest type and species group	Large saw-timber stands		Small saw-timber stands		Pole timber stands		Other stand sizes		All stands	
	Sound ^{2/}	Cull ^{2/}	Sound	Cull	Sound	Cull	Sound	Cull	Sound	Cull
Longleaf pine										
Softwood	--	--	3.8	(3/)	5.1	(3/)	0.9	(3/)	2.1	(3/)
Hardwood	--	--	(3/)	0.1	0.2	0.2	(3/)	0.3	0.1	0.3
Slash pine										
Softwood	1.0	--	3.4	(3/)	6.3	0.1	0.9	(3/)	2.1	(3/)
Hardwood	3.8	2.2	2.3	0.9	0.3	0.2	0.1	0.1	0.5	0.3
Loblolly pine										
Softwood	0.6	--	2.4	(3/)	4.0	0.2	1.0	(3/)	1.7	0.1
Hardwood	0.8	0.4	2.6	1.0	3.4	1.1	0.5	0.6	1.4	0.7
Pond pine										
Softwood	--	--	0.5	--	2.6	--	1.0	(3/)	1.1	(3/)
Hardwood	--	--	--	--	--	--	--	(3/)	--	(3/)
Sand pine										
Softwood	--	--	--	--	1.2	0.3	0.1	--	0.6	0.1
Hardwood	--	--	--	--	1.6	0.2	--	0.5	0.7	0.4
Cypress										
Softwood	0.6	--	1.4	0.3	5.9	0.6	0.8	0.3	2.0	0.3
Hardwood	2.6	4.2	2.1	1.8	2.2	1.1	--	--	1.2	1.1
Lowland hardwoods										
Softwood	0.1	(3/)	0.2	(3/)	0.4	(3/)	0.4	(3/)	0.3	(3/)
Hardwood	3.5	3.2	7.6	2.3	8.7	3.5	1.9	3.3	5.0	3.1
Upland hardwoods										
Softwood	--	--	--	--	0.2	--	--	--	0.1	--
Hardwood	1.0	2.0	4.3	0.9	5.8	0.8	1.5	0.4	2.9	0.6
Scrub oak										
Softwood	--	--	--	--	--	--	0.1	--	0.1	--
Hardwood	--	--	--	--	--	--	(3/)	0.9	(3/)	0.9
All types										
Softwood	0.4	(3/)	2.3	(3/)	4.2	0.1	0.7	(3/)	1.5	(3/)
Hardwood	3.0	2.6	3.4	1.2	2.2	0.9	0.3	0.6	1.0	0.8

^{1/} Sound wood and bark, excluding volume of palms.

^{2/} Sound trees; cull trees.

^{3/} Less than 0.05 cords per acre.

Table 17.--Number^{1/} of turpentine pine trees by working status
and tree size, 1949

(in thousands of trees)

Working status	Pole size trees	Small saw-timber trees	Large saw-timber trees	All trees
Round timber ^{2/}	112,874	28,783	1,152	142,809
Working timber ^{3/}	323	2,403	16	2,742
Resting timber	162	4,451	233	4,846
Abandoned timber	560	1,923	256	2,739
Worked-out timber	139	1,747	--	1,886
All classes	114,058	39,307	1,657	155,022

^{1/} Includes sound and rough cull trees.

^{2/} In 1934 there were 11,945,000 round trees 9.0 inches d.b.h. and larger compared to 29,935,000 in 1949.

^{3/} In 1934 there were 12,081,000 working trees compared to 2,742,000 in 1949.

Table 18.--Area of turpentine timber crops by working status,
1949

Crop working status	Area	
	Acres	Percent
Round timber	410,200	45.0
Working timber		
Front-faced	59,700	6.5
Back-faced	45,200	5.0
Resting timber	186,000	20.4
Abandoned timber	108,900	11.9
Worked-out timber	102,500	11.2
All classes	912,500	100.0

Table 19.--Area of stump land and tonnage of wood naval stores stumps
by availability class, 1949

Availability class	Area	Tonnage ^{1/}
	<u>Acres</u>	<u>Thousand tons</u>
Merchantable area	2,249,800	^{4/} 5,016
Marginal area ^{2/}	91,900	79
Potential area ^{3/}	317,600	836
Inaccessible area	38,300	38
All classes	2,697,600	5,969

^{1/} Includes stumps on agricultural land.

^{2/} Stump-land areas less than 25 acres in extent and partially worked areas.

^{3/} Unworkable at present due to density of timber stands.

^{4/} A check on the tons of stumps harvested under existing practices indicates the recoverable tonnage is approximately two-thirds of the merchantable volume shown.

Table 20.--Number of trees^{1/} by species group, quality class, and tree size,
1949

(in thousands of trees)

Species group and quality class	Sapling- size trees	Pole- size trees	Small saw-timber trees	Large saw-timber trees	All trees
Yellow pines:					
Sound trees	487,577	126,398	45,006	2,923	661,904
Rough culls	12,918	812	1,007	61	14,798
Rotten culls	13,791	434	523	31	14,779
Total	514,286	127,644	46,536	3,015	691,481
Other softwoods:					
Sound trees	20,660	7,618	3,195	630	32,103
Rough culls	2,335	237	198	--	2,770
Rotten culls	2,089	1,613	1,031	451	5,184
Total	25,084	9,468	4,424	1,081	40,057
Soft-textured hdwds.:					
Sound trees	216,154	52,159	11,514	1,925	281,752
Rough culls	62,188	11,875	2,200	268	76,531
Rotten culls	26,185	18,656	6,831	3,191	54,863
Total	304,527	82,690	20,545	5,384	413,146
Hard-textured hdwds.:					
Sound	165,143	26,498	6,281	1,785	199,707
Rough culls ^{2/}	523,574	50,165	3,450	519	577,708
Rotten culls	18,862	8,481	2,055	1,173	30,571
Total	707,579	85,144	11,786	3,477	807,986
Palms	(3/)	72	1,132	--	1,204
All species	1,551,476	305,018	84,423	12,957	1,953,874

^{1/} All trees 1.0 inch d.b.h. and larger.

^{2/} Includes scrub oak and noncommercial trees.

^{3/} Data not recorded.

Table 21.--Area of poorly stocked stands and unstocked areas by plantability classes, 1949

Forest type ^{1/}	No planting required ^{2/}	Suitable for machine planting	Hand planting required	All classes
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Longleaf pine	860,900	559,400	53,700	1,474,000
Slash pine	146,900	186,500	90,900	424,300
Loblolly pine	76,400	33,900	13,400	123,700
Pond pine	45,800	---	21,300	67,100
Sand pine	3,000	29,900	---	32,900
Upland hardwoods	40,900	7,400	---	48,300
Scrub oak	50,000	432,700	123,900	606,600
All types	1,223,900	1,249,800	303,200	2,776,900
Percent	44.1	45.0	10.9	100.0

^{1/} Lowland types not classified.

^{2/} Sufficient seed trees present or area is restocking naturally.

Table 22.—Commercial forest area by forest type and degree of stocking, 1949

STOCKING IN SOUND TREES

Forest type	Degree of stocking ^{1/}					Total area
	0-9 percent	10-39 percent	40-69 percent	70-99 percent	100 + percent	
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Longleaf pine	981,500	904,100	251,900	140,700	107,000	2,385,200
Slash pine	322,100	446,600	192,800	140,600	226,800	1,328,900
Loblolly pine	76,700	122,300	67,900	25,100	69,000	361,000
Pond pine	34,600	58,800	--	--	--	93,400
Sand pine	23,200	32,900	10,900	--	--	67,000
Cypress	11,200	43,200	37,500	15,400	10,500	117,800
Lowland hdwds.	42,900	174,900	279,800	157,500	195,000	850,100
Upland hdwds.	7,400	46,000	5,000	34,500	24,300	117,200
Scrub oak	553,700	29,700	23,200	--	--	606,600
Palm	800	--	--	--	--	800
All types	2,054,100	1,858,500	869,000	513,800	632,600	5,928,000
Percent	34.6	31.3	14.7	8.7	10.7	100.0

STOCKING IN TREES OF ALL QUALITY CLASSES^{2/}

Longleaf pine	751,400	813,400	371,200	228,500	220,700	2,385,200
Slash pine	290,200	469,600	149,600	144,200	275,300	1,328,900
Loblolly pine	25,600	126,900	66,600	57,100	84,800	361,000
Pond pine	34,600	58,800	--	--	--	93,400
Sand pine	23,200	9,700	28,200	5,900	--	67,000
Cypress	11,200	39,900	15,200	14,700	36,800	117,800
Lowland hdwds.	8,100	29,400	125,700	210,300	476,600	850,100
Upland hdwds.	7,400	40,900	7,300	13,400	48,200	117,200
Scrub oak	43,900	227,200	158,700	79,900	96,900	606,600
Palm	--	--	--	--	800	800
All types	1,195,600	1,815,800	922,500	754,000	1,240,100	5,928,000
Percent	20.2	30.6	15.6	12.7	20.9	100.0

^{1/} Including trees 1.0 inches d.b.h. and larger.^{2/} Includes sound trees, cull trees, and palms.

Table 23.--County area by broad use class, 1949

County	Total area ^{1/}	Non-forest area		Forest land		
		Land	Water	Non-commercial ^{2/}	Commercial	
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Bay	551,000	50,600	60,700	11,200	428,500	87.4
Calhoun	362,900	32,700	1,700	--	328,500	90.9
Escambia	491,500	101,000	41,600	2,900	346,000	76.9
Franklin	361,600	29,800	16,500	21,800	293,500	85.0
Gadsden	334,700	100,800	6,000	3,200	224,700	68.4
Gulf	369,900	31,600	7,500	7,500	323,300	89.2
Holmes	309,800	83,900	2,000	--	223,900	72.7
Jackson	606,700	261,800	8,300	900	335,700	56.1
Jefferson	389,800	96,500	4,300	--	289,000	75.0
Leon	445,500	94,700	16,300	100	334,400	77.9
Liberty	540,800	6,500	3,100	16,800	514,400	95.7
Okaloosa	634,900	77,800	40,500	6,600	510,000	85.8
Santa Rosa	737,300	95,400	72,600	6,400	562,900	84.7
Wakulla	406,400	42,400	14,900	50,200	298,900	76.3
Walton	726,400	82,800	31,900	4,500	607,200	87.4
Washington	391,000	71,500	12,400	--	307,100	81.1
Unit total	7,660,200	1,259,800	340,300	132,100	5,928,000	81.0

^{1/} Gross area from Bureau of the Census, 1940.

^{2/} Non-productive forest land plus forest land withdrawn from commercial use.

Table 24.--Ownership of commercial forest land by county, 1949

County	Private		Public					Total public	
			National forest	Other federal	State	County, city, town			
	Acres	Percent	Acres	Acres	Acres	Acres	Acres	Percent	
Bay	398,800	93.1	--	21,300	8,000	400	29,700	6.9	
Calhoun	328,200	99.9	--	100	100	100	300	0.1	
Escambia	345,000	99.7	--	600	--	400	1,000	0.3	
Franklin	271,900	92.6	21,400	--	200	--	21,600	7.4	
Gadsden	223,200	99.3	--	100	1,300	100	1,500	0.7	
Gulf	321,100	99.3	--	2,200	(1/)	--	2,200	0.7	
Holmes	222,700	99.5	--	300	600	300	1,200	0.5	
Jackson	331,800	98.8	--	400	3,300	200	3,900	1.2	
Jefferson	282,900	97.9	--	4,400	1,500	200	6,100	2.1	
Leon	232,700	69.6	100,600	500	100	500	101,700	30.4	
Liberty	249,600	48.5	263,000	300	800	700	264,800	51.5	
Okaloosa	242,800	47.6	--	264,000	3,200	(1/)	267,200	52.4	
Santa Rosa	389,300	69.2	--	171,800	700	1,100	173,600	30.8	
Wakulla	97,900	32.8	157,700	43,200	100	--	201,000	67.2	
Walton	440,900	72.6	--	165,700	600	--	166,300	27.4	
Washington	304,000	99.0	--	300	2,800	--	3,100	1.0	
Unit total	4,682,800	79.0	542,700	675,200	23,300	4,000	1,245,200	21.0	

1/ Less than 50 acres.

Table 25.--Net volume^{1/} of saw timber by county and species group, 1949

(in thousand board feet)

County	Softwoods ^{2/}	Tupelo, sweet-gum, and soft maple ^{3/}	Other hardwoods	All species
Bay	157,100	18,300	13,700	189,100
Calhoun	100,600	67,100	107,300	275,000
Escambia	262,400	34,100	9,900	306,400
Franklin	153,200	137,600	4,900	295,700
Gadsden	162,100	61,500	33,000	256,600
Gulf	220,800	71,100	26,300	318,200
Holmes	111,500	83,600	84,800	279,900
Jackson	197,700	124,500	122,700	444,900
Jefferson	309,200	231,800	79,900	620,900
Leon	426,500	83,500	36,300	546,300
Liberty	508,500	177,100	113,900	799,500
Okaloosa	384,200	31,200	10,200	425,600
Santa Rosa	552,200	54,300	34,100	640,600
Wakulla	321,400	23,300	30,000	374,700
Walton	205,600	94,400	47,600	347,600
Washington	119,000	51,700	46,200	216,900
Unit total	4,192,000	1,345,100	800,800	6,337,900

^{1/} Log scale, International 1/4-inch rule.

^{2/} Includes pine, cypress, and cedar.

^{3/} Includes other soft-textured hardwoods.

Table 26.--Net volume^{1/} of saw timber by county, broad species group, and diameter class group, 1949

County	Softwoods		Hardwoods		Soft- woods	Hard- woods
	9-14 inches	15 + inches	11-16 inches	17 + inches		
	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Thousand bd. ft.</u>	<u>Percent</u>	<u>Percent</u>
Bay	110,300	46,800	29,900	2,100	83.1	16.9
Calhoun	92,200	8,400	115,800	58,600	36.6	63.4
Escambia	255,500	6,900	27,100	16,900	85.6	14.4
Franklin	124,600	28,600	123,600	18,900	51.8	48.2
Gadsden	112,100	50,000	77,600	16,900	63.2	36.8
Gulf	169,700	51,100	56,200	41,200	69.4	30.6
Holmes	87,500	24,000	109,400	59,000	39.8	60.2
Jackson	144,000	53,700	156,700	90,500	44.4	55.6
Jefferson	242,700	66,500	216,800	94,900	49.8	50.2
Leon	319,700	106,800	46,600	73,200	78.1	21.9
Liberty	314,400	194,100	158,000	133,000	63.6	36.4
Okaloosa	283,900	100,300	19,500	21,900	90.3	9.7
Santa Rosa	434,000	118,200	46,200	42,200	86.2	13.8
Wakulla	293,600	27,800	46,000	7,300	85.8	14.2
Walton	142,300	63,300	108,600	33,400	59.1	40.9
Washington	113,000	6,000	62,400	35,500	54.9	45.1
Unit total	3,239,500	952,500	1,400,400	745,500	66.1	33.9

^{1/} Log scale, International 1/4-inch rule.

Table 27.--Net volume^{1/} of all trees by county, pulping-species groups, and tree diameter groups, 1949

SOUND TREES (in thousand cords)

County	Yellow pines		Tupelo, sweetgum and soft maple ^{2/}		Other species		All species
	5-12 inches	13 + inches	5-12 inches	13 + inches	5-12 inches	13 + inches	
Bay	1,077	122	186	30	161	40	1,616
Calhoun	399	20	241	118	259	244	1,281
Escambia	1,626	79	204	62	64	14	2,049
Franklin	594	143	248	285	111	16	1,397
Gadsden	498	207	350	103	146	61	1,365
Gulf	845	31	119	169	221	183	1,568
Holmes	521	87	357	174	200	181	1,520
Jackson	740	177	710	202	431	245	2,505
Jefferson	783	229	657	458	384	192	2,703
Leon	1,159	483	260	182	138	82	2,304
Liberty	1,319	443	463	377	413	380	3,395
Okaloosa	704	628	161	67	47	23	1,630
Santa Rosa	2,215	395	181	105	153	127	3,176
Wakulla	1,267	231	141	22	161	55	1,877
Walton	1,022	204	724	121	170	143	2,384
Washington	489	54	296	70	257	95	1,261
Unit total	15,258	3,533	5,298	2,545	3,316	2,081	32,031

ROTTEN AND ROUGH CULLS (in thousand cords)

Bay	18	3	33	34	70	8	166
Calhoun	11	--	49	84	323	242	709
Escambia	2	6	113	86	285	10	502
Franklin	12	26	66	306	70	8	488
Gadsden	9	--	316	205	177	200	907
Gulf	16	--	214	487	148	120	985
Holmes	3	--	99	95	66	118	381
Jackson	19	2	265	258	304	354	1,202
Jefferson	28	9	232	337	156	255	1,017
Leon	8	6	94	95	154	170	527
Liberty	11	--	196	399	344	265	1,215
Okaloosa	68	--	157	311	199	45	780
Santa Rosa	4	4	168	163	522	87	948
Wakulla	34	--	61	70	239	188	592
Walton	37	8	412	314	316	160	1,247
Washington	--	--	172	254	196	106	728
Unit total	280	64	2,647	3,498	3,569	2,336	12,394

^{1/} Sound wood and bark, excluding volume of palms. Limbs of sawlog-size hardwoods are included in cull volumes.

^{2/} Includes bay, magnolia, and yellow-poplar.

DEFINITION OF TERMS

Land-Use Classes

Forest. Land bearing forest growth, land from which the forest has been removed and which shows no evidence of any other recent land use, or former agricultural land which now has a five-percent stocking of trees. Subdivided into the following classes:

Commercial: Land bearing, or capable of bearing, timber of commercial character and available now or prospectively for commercial use.

Reserved: Forest land in public ownership upon which commercial timber cutting is prohibited.

Non-productive: Forest land of such low productivity or so inaccessible that commercial timber will not be produced.

Non-forest. Land less than five percent stocked with trees and showing evidence of non-forest use.

Agriculture: Under cultivation or in pasture, including farm yards on active farms.

Idle: Land previously cultivated or pastured but now idle or abandoned. If reverting to forest there must be less than five percent stocking of trees.

Marsh: Low, boggy, non-forested land usually supporting a heavy growth of grass.

Dunes and beaches: Non-forested sand dunes or coastal beaches.

Urban and other: Includes towns, suburban areas being developed for residential or other urban purposes, school yards, cemeteries, industrial sites, roads, railroads, power lines, and other rights-of-way. Scattered areas of timber within exterior boundaries of cities or villages are also included.

Water: Includes both the small ponds and lakes less than 40 acres in size and streams, sloughs, and canals less than ten chains in width classed as "land area" by the Bureau of the Census. Also includes the "inland water" listed by the Census. On coastal areas the water-line is the mean high-tide mark; tidal flats are classed as water.

Forest Types

Longleaf pine. Stands in which coniferous species comprise at least 25 percent of the dominant and codominant trees, with longleaf pine predominating.

Slash pine. Stands in which coniferous species comprise at least 25 percent of the dominant and codominant trees, with slash pine predominating.

Loblolly pine. Stands in which coniferous species comprise at least 25 percent of the dominant trees, with loblolly pine predominating. Stands of shortleaf and spruce pine are also included in this type.

Pond pine. Stands in which coniferous species comprise at least 25 percent of the dominant and codominant trees with pond pine predominating.

Sand pine. Stands in which coniferous species comprise at least 25 percent of the dominant and codominant trees with sand pine predominating.

Cypress. Stands in which coniferous species comprise at least 25 percent of the dominant and codominant trees, with cypress predominating. White cedar is also included with this type.

Lowland hardwoods. Stands in which mixed hardwoods such as tupelo gum, black-gum, sweetgum, white oak, water oak, red maple, and ash comprise at least 75 percent of the dominant and codominant trees. Found along rivers, small streams, and in swamps and bays.

Upland hardwoods. Stands in which mixed hardwoods such as red oak, white oak, post oak, hickory, ash, sweetgum, elm, and yellow-poplar comprise at least 75 percent of the dominant and codominant trees. Found on the drier upland sites and on low rolling hills bordering the flatwood zone.

Scrub oak. Stands in which scrub species such as blackjack, bluejack, turkey and laurel oaks predominate and in which sound commercial species comprise less than five percent of satisfactory stocking.

Palms. Stands in which there is at least a five-percent stocking of merchantable palm trees and less than five-percent stocking of other sound commercial species.

Stand-Size Classes

Saw timber. Stands containing at least 1,500 board feet net, International 1/4-inch log rule, per acre in sound, live, softwood trees 9.0 inches d.b.h. or larger or hardwood trees 11.0 inches d.b.h. or larger. Two classes of saw-timber stands are recognized:

Large saw timber: Stands of saw timber having more than 50 percent of the net board-foot volume in softwood trees 15.0 inches d.b.h. or larger, or hardwood trees 17.0 inches d.b.h. or larger.

Small saw timber: Stands of saw timber having 50 percent or less of the net board-foot volume in softwood trees 15.0 inches d.b.h. or larger, or hardwood trees 17.0 inches d.b.h. or larger.

Pole timber. Stands at least 10 percent stocked with pole-size or larger timber, with at least one-half the minimum stocking in pole sizes, and which have less than 1,500 board feet net per acre of saw timber.

Seedling and sapling. Stands less than 10 percent stocked by pole-size or larger trees and with less than 1,500 board feet net per acre, but at least 40 percent stocked with commercial species. Eight hundred seedlings or saplings per acre are considered full stocking.

Poorly stocked and unstocked. Stands of pole-size or larger trees that are less than 10 percent stocked, seedling or sapling stands less than 40 percent stocked, or nonstocked forest land.

Diameters

D.b.h. (diameter at breast height). Stem diameter in inches, outside bark, measured at $4\frac{1}{2}$ feet above the ground.

Diameter class. All trees were tallied by 2-inch diameter classes, each class including diameters 1.0 inch below and 0.9 inch above the stated midpoint; e.g., trees 7.0 to and including 8.9 inches are in the 8-inch class.

Tree Classification

Sound saw-timber trees. Softwood trees at least 9.0 inches d.b.h. and hardwood trees at least 11.0 inches d.b.h., with not less than one merchantable log 12 feet long, or with less than 50 percent of the gross volume of the tree in sound saw timber.

Sound pole timber trees. Straight-boled trees between 5.0 inches d.b.h. and saw-timber size.

Sound sapling-size trees. Trees 1.0 inch to 4.9 inches d.b.h. which will grow into pole or saw-timber size trees of sound quality.

Rough cull trees. Trees that fail to qualify as sound timber because of poor form, excessive limbiness, or other sound defect. Volumes shown for rough cull trees also include the limbs, in sections four feet long and at least 4.0 inches in diameter inside bark, of sound saw-timber-size hardwoods. Scrub oak and noncommercial species are included in this group.

Rotten cull trees. Trees that fail to qualify as sound timber because of rotten defect.

Palms. All species of Sabal 5.0 inches d.b.h. and larger with at least 12 feet of clear stem. All palm trees were considered to be free of rotten defect.

Species Groups

Softwoods. All of the pines, eastern redcedar, Atlantic white-cedar, pond cypress, and baldcypress.

Soft hardwoods. Black and water tupelos, sweetgum, and soft maple. The other soft-textured hardwoods include sweetbay, cottonwood, willow, basswood, southern magnolia, and yellow-poplar.

Hard hardwoods. All of the oaks, hickories, and ash. The other hard-textured hardwoods include river birch, elm, hackberry, and sycamore.

Volume Estimates

Board-foot volume. The volume in board feet, measured by the International 1/4-inch rule, exclusive of defect, of that portion of saw-timber trees between the stump and the upper limit of merchantability for sawlogs.

Volume in cords. For sound trees the volume in standard cords (including bark) of the sound portion of trees 5.0 inches d.b.h. and larger, between stump and a minimum top-stem diameter of 4.0 inches inside bark. For cull trees similar volumes are included plus the volume in limbs, in sections four feet long and at least 4.0 inches in diameter inside bark, of saw-timber size hardwoods.

Volume in cubic feet. Same as volume shown in cords except bark is not included.

International 1/4-inch log rule. A rule for estimating the board-foot volume of 4-foot log sections, according to the formula $V = .905 (0.22D^2 - 0.71D)$. The taper allowance for computing the volume in log lengths greater than four feet is 0.5 inch per 4-foot section. Allowance for saw kerf is 1/4 inch.

Standard cord. A stacked pile, 4 x 4 x 8 feet, of round or split bolts, estimated to contain, on the average, 90 cubic feet of softwoods (wood and bark) or 80 cubic feet of hardwoods (wood and bark).

Gum Naval Stores Conditions

Round timber. A minimum of 15 longleaf and slash pine trees 9.0 inches d.b.h. or larger per acre that have never been worked for naval stores.

Working. Longleaf and slash pine trees that are now being worked for naval stores.

Front-faced. Turpentine tree species on which the front or first face is now being worked.

Back-faced. Turpentine tree species on which the front face has been worked out and on which a back (second or third, etc.) face is being worked.

Resting. Longleaf and slash pine trees with a worked-out front face at least 5 feet high and on which back-facing has not been started.

Abandoned. Longleaf and slash pine trees on which faces less than 5 feet high were discontinued.

Worked-out. Longleaf and slash pine trees on which two or more faces at least 5 feet high have been worked out and with no possibility of supporting another face.

Stocking

Stocking classifications were based on the number of stems present by d.b.h. classes. Areas having the minimum numbers of trees listed below, either in a single diameter class or in combinations, were considered adequately stocked.

<u>DBH</u>	<u>Minimum number trees per acre</u>
2 inches	800
4 inches	600
6 inches	450
8 inches	300
10 inches	200
12 inches	150
14 inches	110

RELIABILITY OF THE DATA

In general, there are two possible sources of error in estimating timber volumes and land areas in various categories under procedures used by the Forest Survey. These are (1) common mistakes resulting from errors of judgment in classifying or recording data, mistakes made in compiling the information, and errors in the application of techniques, and (2) sampling errors.

In Forest Survey work a diligent effort is made to maintain a high degree of accuracy in the collection and compilation of the data. Common errors are eliminated or minimized through training and frequent check cruises in the field and through complete editing and machine verification of office procedures in compiling the data.

Sampling errors (standard errors of estimate) carry no connotation of faulty work but are theoretical measures of the reliability of the estimates based on the variability exhibited by the sample data. Sampling errors were the only measurable errors involved in computing the reliability of the data.

Forest area. The sampling intensity was sufficient to provide an estimate of the forest acreage of the Unit with a standard error of ± 0.5 percent. This indicates the probabilities are two out of three that the actual forest area is within ± 0.5 percent of the given estimate.

Timber volumes. The standard error of estimate of the board-foot volume of saw timber in the Unit is ± 3.9 percent. Here again, the probabilities are two out of three that the actual volume is ± 3.9 percent of the given estimate. Corresponding errors for the total volume in cords or cubic feet were not computed, but they should be smaller.

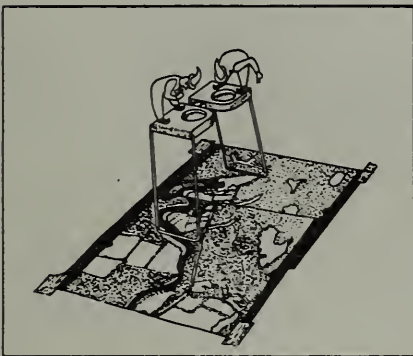
Use of county data. The tables showing area and timber volumes by county are included to facilitate the grouping of county data in any combination desired. Statistics for individual counties have a standard error of estimate for forest area ranging from ± 1.4 to ± 3.7 percent, and for board-foot volume from ± 11.3 to ± 18.6 percent. Obviously, detailed comparisons between counties are subject to considerable error and should be avoided. Grouping a number of counties together will increase the reliability of the area and volume estimates and make these data sufficiently accurate for most general purposes.

HOW THE FOREST INVENTORY IS MADE

The present system of inventory is based upon interpretation of aerial photographs supplemented by cruising of randomly selected ground plots. The county is the basic work unit. Steps in the procedure are as follows:



1. Acreages of forest land are estimated with the use of a dot grid placed on every 3rd contact print along flight lines in each county. The proportion of dots falling on forest areas when applied to the gross area of the county yields a preliminary estimate of the acreage of forest land. This is later revised after certain field checks.



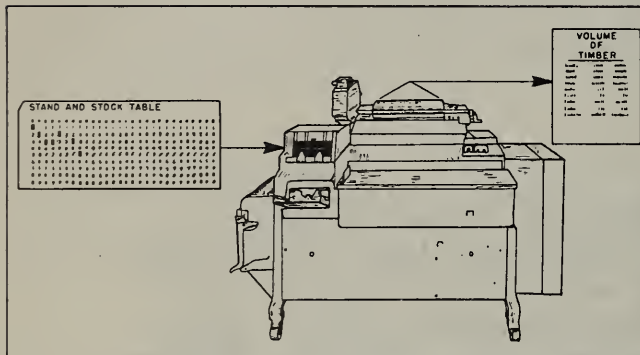
2. Every 3rd plot listed as forest in step one is classified into forest type, stand class, and density class by careful stereoscopic analysis of the photographs. The proportion of plots falling in each classification when applied to the forest area of the county gives the area in each classification. These areas are revised following ground checking.



3. Timber cruisers make a detailed on-the-ground tally of every 3rd large saw-timber photo plot, every 4th small saw-timber, every 6th pole timber, every 13th seedling and sapling plot, and every 26th poorly stocked plot, to obtain volume, growth, cull and mortality data, and to check accuracy of photo classification. They also check a sample of the idle and agricultural plots to determine the area reverting to forest.



4. Growth estimates are based on increment borings taken from trees of the various diameters and species in each forest type and stand class.



5. All field data are sent to the Asheville office for editing and are placed on punch cards for machine tabulation. Statistical techniques are used to correct for changes in photo classification, and to determine final figures on areas, volumes, and growth.

FOREST SURVEY REPORTS PUBLISHED SINCE 1945

Southeastern Forest Experiment Station

- No. 21 - 1945 Pulpwood Production by County in the Carolinas and Virginia.
- No. 22 - Southern Forests as a Source of Pulpwood.
- No. 23 - 1946 Pulpwood Production by County in the Southeast.
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